

SEQUENCE LISTING

<110> API Corporation

<120> A method for the production of optically active alcohols and carboxylic acids

<130> A51051A

<160> 13

<210> 1

<211> 345

<212> PRT

<213> Issatchenka scutulata

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35 40 45

Lys Lys Tyr Pro Asp Ala Asn Leu Thr Phe Glu Val Val Pro Asp Ile

50 55 60

Ser Thr Glu Asn Ala Phe Asp Asp Val Leu Lys Lys His Pro Glu Ile

65 70 75 80

Thr Ala Val Leu His Thr Ala Ser Pro Phe Ser Phe Gly Leu Asn Lys

85 90 95

Asp Leu Lys Glu Ala Tyr Leu Lys Pro Ala Val Asp Gly Thr Leu Asn

100 105 110

Ile Leu Lys Ala Ile Glu Lys Tyr Ala Pro Gln Val Thr Lys Val Val

115 120 125

Ile Thr Ser Ser Tyr Ala Ala Ile Met Thr Gly Asn Pro Ser His Val
130 135 140
His Thr Ser Glu Thr Trp Asn Pro Ile Asn Trp Glu Asn Asp Val Lys
145 150 155 160
Asn Glu Tyr Phe Ala Tyr Ile Ala Ser Lys Thr Tyr Ala Glu Lys Ala
165 170 175
Ala Arg Asp Phe Val Lys Glu His Lys Val Asn Phe Lys Leu Ala Thr
180 185 190
Val Asn Pro Pro Tyr Val Leu Gly Pro Gln Leu Phe Asp Phe Ser Val
195 200 205
Gly Pro Val Leu Asn Thr Ser Asn Gln Leu Ile Thr Asp Ala Thr Lys
210 215 220
Ile Asp Lys Asn Ser Thr Lys Pro Glu Leu Gly Thr Pro Ala Leu Ala
225 230 235 240
Val Asp Val Arg Asp Val Ala Ala Phe His Val Leu Pro Leu Glu Asp
245 250 255
Asp Lys Val Ala Ser Glu Arg Leu Phe Ile Val Ala Gly Pro Ala Val
260 265 270
Val Gln Thr Phe Leu Asn Ile Ile Asn Glu Asn Ile Pro Glu Leu Lys
275 280 285
Gly Lys Val Ala Leu Gly Asp Pro Ala Ser Glu Lys Glu Leu Ile Glu
290 295 300
Lys His Thr Asp Lys Tyr Asp Leu Thr Asn Leu His Asn Val Ile Gly
305 310 315 320
Lys Tyr Asp Phe Ile Pro Val Glu Lys Ser Val Val Asp Val Leu Glu
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Gln Tyr Tyr Lys Ile Asn Lys Ile Asp

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345

<210> 2

<211> 1038

<212> DNA

<213> Issatchenkovia scutulata

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caaccaatcc ttgatgcttt caagaaaaaa taccctgatg caaatttgac ttttgaagtt 180
gtccctgaca tctccactga aaacgcattc gatgatgttt tgaagaagca tccagaaatt 240
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gcatatttga agcctgccgt tcatggact ttgaatattc tcaaggcaat tgagaagttat 360
gcaccacagg ttactaaagt ttttatcaca tcttcttatg ctgcaattat gacaggtaat 420
ccaagtcatg tccacaccag tgaacacctgg aacccaatta attggaaaaa cgatgtgaag 480
aatgaatact ttgcatatat tgcctccaag acgtatgctg aaaaagctgc gagagattt 540
gtcaaggagc ataaggtcaa tttcaagttt gcaactgtta acccaccata cggtctgggt 600
ccacaattat ttgacttctc agttggtcca gtcttgaaca cttccaaacca attgatcact 660
gatgcgacta aaattgataa gaactctact aagccggaaat taggtacacc agcttttagca 720
gtcgatgtta gagatgttgc tgcgttccat gtttaccat tggaaagatga taaagttgca 780
agtgaaagat tatttattgt tgctggtcca gcagttgttc aaacattctt aaacatcatc 840
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gagttgatttggaaatgacac agataagtat gatttgacaa atcttcacaa cgttattgggt 960
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<213> *Saccharomyces cerevisiae*

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35 40 45
Asn Pro Asn Leu Thr Leu Glu Ile Val Pro Asp Ile Ser His Pro Asn
50 55 60
Ala Phe Asp Lys Val Leu Gln Lys Arg Gly Arg Glu Ile Arg Tyr Val
65 70 75 80
Leu His Thr Ala Ser Pro Phe His Tyr Asp Thr Thr Glu Tyr Glu Lys
85 90 95
Asp Leu Leu Ile Pro Ala Leu Glu Gly Thr Lys Asn Ile Leu Asn Ser
100 105 110
Ile Lys Lys Tyr Ala Ala Asp Thr Val Glu Arg Val Val Val Thr Ser
115 120 125
Ser Cys Thr Ala Ile Ile Thr Leu Ala Lys Met Asp Asp Pro Ser Val
130 135 140
Val Phe Thr Glu Glu Ser Trp Asn Glu Ala Thr Trp Glu Ser Cys Gln
145 150 155 160
Ile Asp Gly Ile Asn Ala Tyr Phe Ala Ser Lys Phe Ala Glu Lys
165 170 175
Ala Ala Trp Glu Phe Thr Lys Glu Asn Glu Asp His Ile Lys Phe Lys
180 185 190
Leu Thr Thr Val Asn Pro Ser Leu Leu Phe Gly Pro Gln Leu Phe Asp

195 200 205
Glu Asp Val His Gly His Leu Asn Thr Ser Cys Glu Met Ile Asn Gly
210 215 220
Leu Ile His Thr Pro Val Asn Ala Ser Val Pro Asp Phe His Ser Ile
225 230 235 240
Phe Ile Asp Val Arg Asp Val Ala Leu Ala His Leu Tyr Ala Phe Gln
245 250 255
Lys Glu Asn Thr Ala Gly Lys Arg Leu Val Val Thr Asn Gly Lys Phe
260 265 270
Gly Asn Gln Asp Ile Leu Asp Ile Leu Asn Glu Asp Phe Pro Gln Leu
275 280 285
Arg Gly Leu Ile Pro Leu Gly Lys Pro Gly Thr Gly Asp Gln Val Ile
290 295 300
Asp Arg Gly Ser Thr Thr Asp Asn Ser Ala Thr Arg Lys Ile Leu Gly
305 310 315 320
Phe Glu Phe Arg Ser Leu His Glu Ser Val His Asp Thr Ala Ala Gln
325 330 335
Ile Leu Lys Lys Glu Asn Arg Leu
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<213> Issatchenkovia scutulata
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<210> 5

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<213> Issatchenkia scutulata

<400> 5

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<223> n; inosine

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<211> 341
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<213> *Issatchenkovia scutulata*
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agttgtccct gacatctcca ctgaaaacgc attcgatgat gtttgaaga agcatccaga 180
aattactgct gtccttcaca cagcatctcc attctcttt gtttgaaca aggatctgaa 240
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gtatgcacca caggttacta aagttgttat cacatcttct t 341

<210> 9
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<213> Issatchenkovia scutulata

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Ser Asn Lys Thr Val Leu Val Thr Gly Ala Thr Gly Phe Ile Ala Leu			
5	10	15	
cac atc att gat aat tta ttg tct aag ggt tat tcc gtt att ggt aca	153		
His Ile Ile Asp Asn Leu Leu Ser Lys Gly Tyr Ser Val Ile Gly Thr			
20	25	30	
gct aga tcc caa tct aaa tat caa cca atc ctt gat gct ttc aag aaa	201		
Ala Arg Ser Gln Ser Lys Tyr Gln Pro Ile Leu Asp Ala Phe Lys Lys			
35	40	45	
aaa tac cct gat gca aat ttg act ttt gaa gtt gtc cct gac atc tcc	249		
Lys Tyr Pro Asp Ala Asn Leu Thr Phe Glu Val Val Pro Asp Ile Ser			
50	55	60	65
act gaa aac gca ttc gat gat gtt ttg aag aag cat cca gaa att act	297		
Thr Glu Asn Ala Phe Asp Asp Val Leu Lys Lys His Pro Glu Ile Thr			
70	75	80	
gct gtc ctt cac aca gca tct cca ttc tct ttt ggt ttg aac aag gat	345		

Ala Val Leu His Thr Ala Ser Pro Phe Ser Phe Gly Leu Asn Lys Asp
 85 90 95
 ctg aag gaa gca tat ttg aag cct gcc gtt gat ggt act ttg aat att 393
 Leu Lys Glu Ala Tyr Leu Lys Pro Ala Val Asp Gly Thr Leu Asn Ile
 100 105 110
 ctc aag gca att gag aag tat gca cca cag gtt act aaa gtt gtt atc 441
 Leu Lys Ala Ile Glu Lys Tyr Ala Pro Gln Val Thr Lys Val Val Ile
 115 120 125
 aca tct tct tat gct gca att atg aca ggt aat cca agt cat gtc cac 489
 Thr Ser Ser Tyr Ala Ala Ile Met Thr Gly Asn Pro Ser His Val His
 130 135 140 145
 acc agt gaa acc tgg aac cca att aat tgg gaa aac gat gtg aag aat 537
 Thr Ser Glu Thr Trp Asn Pro Ile Asn Trp Glu Asn Asp Val Lys Asn
 150 155 160
 gaa tac ttt gca tat att gcc tcc aag acg tat gct gaa aaa gct gcg 585
 Glu Tyr Phe Ala Tyr Ile Ala Ser Lys Thr Tyr Ala Glu Lys Ala Ala
 165 170 175
 aga gat ttt gtc aag gag cat aag gtc aat ttc aag tta gca act gtt 633
 Arg Asp Phe Val Lys Glu His Lys Val Asn Phe Lys Leu Ala Thr Val
 180 185 190
 aac cca cca tac gtt ctg ggt cca caa tta ttt gac ttc tca gtt ggt 681
 Asn Pro Pro Tyr Val Leu Gly Pro Gln Leu Phe Asp Phe Ser Val Gly
 195 200 205
 cca gtc ttg aac act tcc aac caa ttg atc acg gat gct act aaa att 729
 Pro Val Leu Asn Thr Ser Asn Gln Leu Ile Thr Asp Ala Thr Lys Ile
 210 215 220 225
 gat aag aac tct act aag ccg gaa tta ggt aca cca gct tta gca gtc 777

Asp Lys Asn Ser Thr Lys Pro Glu Leu Gly Thr Pro Ala Leu Ala Val
 230 235 240
 gat gtt aga gat gtt gct gcg ttc cat gtt tta cca ttg gaa gat gat 825
 Asp Val Arg Asp Val Ala Ala Phe His Val Leu Pro Leu Glu Asp Asp
 245 250 255
 aaa gtt gca agt gaa aga tta ttt att gtt gct ggt cca gca gtt gtt 873
 Lys Val Ala Ser Glu Arg Leu Phe Ile Val Ala Gly Pro Ala Val Val
 260 265 270
 caa aca ttc tta aac atc atc aac gag aac att cca gaa ctt aaa ggt 921
 Gln Thr Phe Leu Asn Ile Ile Asn Glu Asn Ile Pro Glu Leu Lys Gly
 275 280 285
 aag gtt gcc cta gga gat cca gct tca gag aag gag ttg att gaa aag 969
 Lys Val Ala Leu Gly Asp Pro Ala Ser Glu Lys Glu Leu Ile Glu Lys
 290 295 300 305
 cac aca gat aag tat gat ttg aca aat ctt cac aac gtt att ggt aaa 1017
 His Thr Asp Lys Tyr Asp Leu Thr Asn Leu His Asn Val Ile Gly Lys
 310 315 320
 tat gat ttc att cca gtt gaa aag tcc gtt gtc gac gtc tta gaa caa 1065
 Tyr Asp Phe Ile Pro Val Glu Lys Ser Val Val Asp Val Leu Glu Gln
 325 330 335
 tat tac aaa atc aat aaa att gat tag ttttatataga aaattttata 1112
 Tyr Tyr Lys Ile Asn Lys Ile Asp
 340 345
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 <211> 35

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 12

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<210> 13

<211> 38

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 13

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